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REPORT OF COMMITTEE ON WATER CONSUMPTION AMERICAN WATER WORKS ASSOCIATION, 1913–1915

In presenting its report of results obtained to date, your Water Consumption Committee believes that it has made a beginning toward the segregation of water uses in American cities.

Our object has been to improve on the old misleading standard "Total Per Capita use"—total consumption divided by population. Conditions in different municipalities vary so greatly as to render "Total Per Capita" useless for purposes of comparison and in beginning our labors two years ago we sought to divide water consumption into two main classes—*Domestic* and *Non-Domestic.* The latter divided into three sub-classes where possible. Thus we have:

Domestic use: Or that wholly for residential or domestic purposes.

Non-Domestic use: Industrial, or railroads, factories, etc.

Commercial: Or stores, saloons, stables, boarding houses, etc., including double houses.

Public: Or fire protection, street sprinkling, sewer flushing, public buildings, schools, fountains, etc.

The responses received to our circular inquiry were both gratifying and disappointing, gratifying in the large number of returns and disappointing because many cities were unable to classify their meter readings even into the two simple divisions of Domestic and Non-Domestic use. However, we believe we are able to present to the Association a body of fairly accurate data from which valuable conclusions may be drawn, and it is our hope that this beginning will encourage all water works officials to keep their records so that segregated statistics of water consumption may be obtained.

We would recommend that the work begun by this committee be repeated from time to time until more complete records are available to our members on which to base reliable conclusions regarding the legitimate requirements of each class of water users. Concerning these various classes the following observations may be in order.

Industrial use: No community is a criterion for another in this class of use and therefore it is indispensable that data relating to industrial use should be separated from the total.

Commercial use: It will be found that this class of consumption does not vary per capita as greatly as industrial use.

Public use: Here the consumption will vary according as the water is paid for or is free in consideration of franchise rights, etc. We should coöperate with public service commissions in urging water companies and departments to adopt meter measurement and fair charges for all water used for public purposes.

Domestic use: This we have attempted to separate as fully as possible. Our results seem to indicate that the old standard of 100 gallons per capita or even the 50 gallons which has been much used by engineers of late, can now be replaced in most communities by an allowance of 25 gallons per capita daily for domestic use, and that half of this amount is a possibility where meters are in general use. But here tabulated statistics must not be applied without judgment for obviously it is unjust to compare a mill town in Western Pennsylvania having no lawns, few sewers and where poverty or economy reigns; with a suburb of New York or Chicago, having wide lawns, thorough sewerage, and the elaborate plumbing of prosperous homes.

We have attempted to classify double houses, flats, etc., as commercial use in order that our reported domestic per capita—based upon five persons per tap, see column 33 of our table—might be more accurate. Column 32 is however the more reliable index of domestic use.

The gist of our investigation is presented in the form of a diagram in which the cities are arranged in order of their total per capita use, the largest being at the top. Shaded areas show the domestic and non-domestic use, while the space between these areas represents the supply "unaccounted for." When we confine ourselves to those cities having 95 per cent or more of their taps metered, this diagram brings out the "unaccounted for" loss which we know exists in every water works system. It is apparent that this loss varies from 10 per cent to more than 60 per cent of the water delivered to the mains, and here lies an important field for economy and the elimination of underground waste.

This graphical presentation should be of use in various ways; as for example, in rate making cases under public service control, for it is too frequently presumed that all the water pumped is delivered to the consumers, and naturally, rates based on this assumption, sooner or later are found to be confiscatory.

GRAPHICAL REPRESENTATION

OF

TOTAL, NON-DOMESTIC AND DOMESTIC PER CAPITA CONSUMPTION

OF

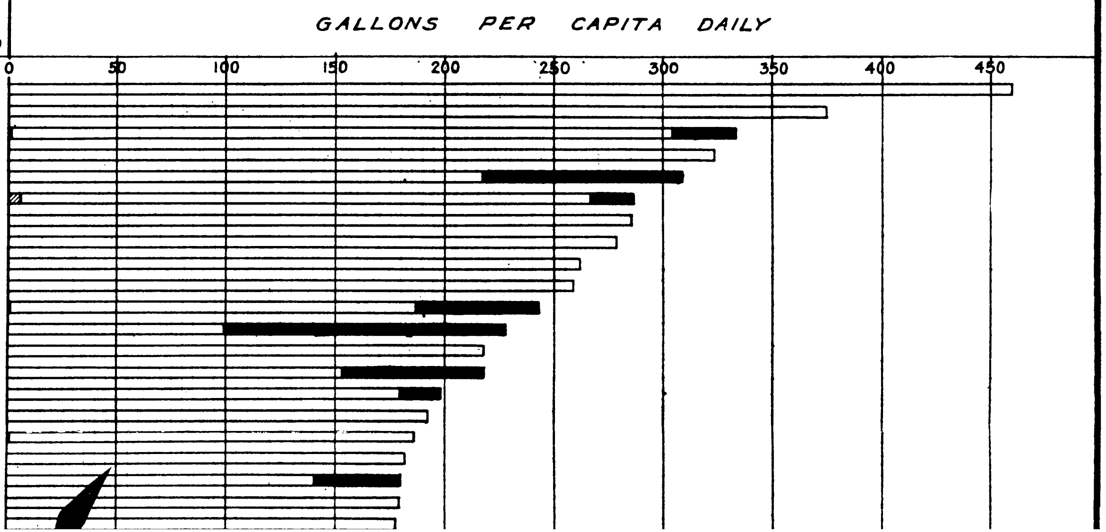
CERTAIN CITIES

TO ACCOMPANY REPORT OF

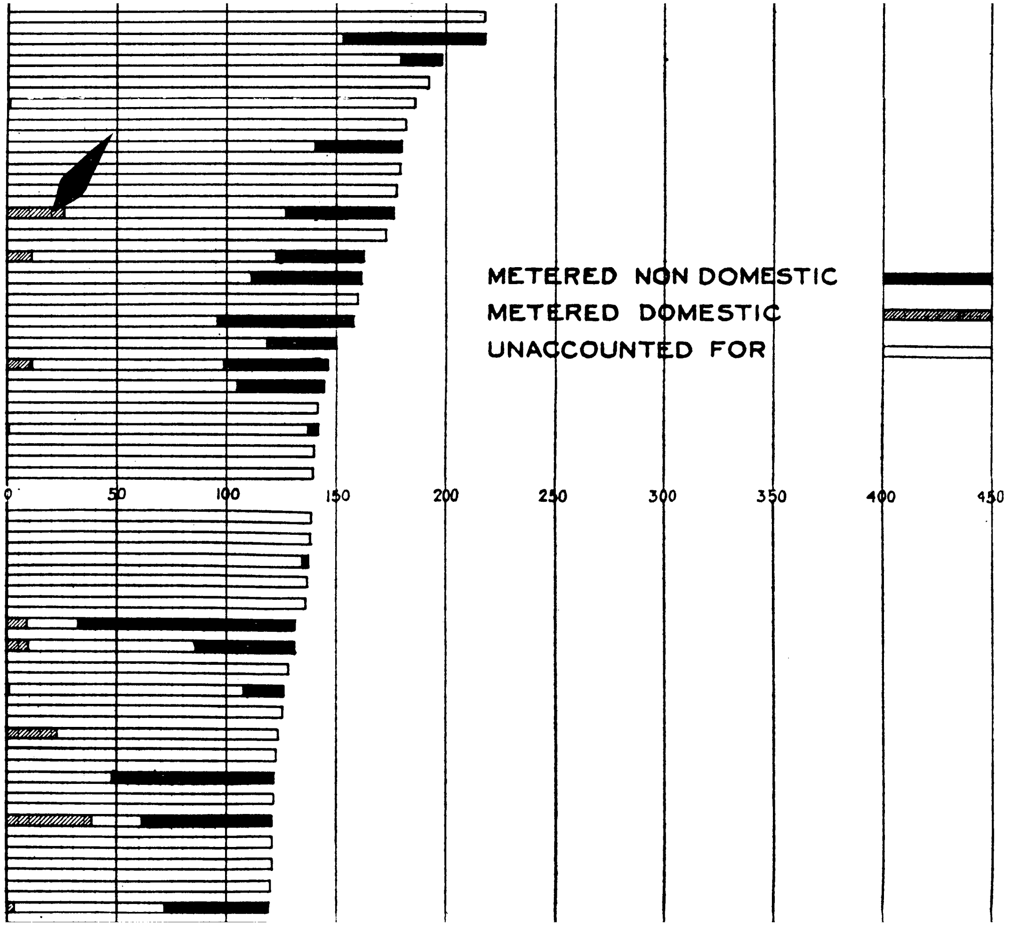
WATER CONSUMPTION COMMITTEE AMERICAN WATER WORKS ASSOCIATION

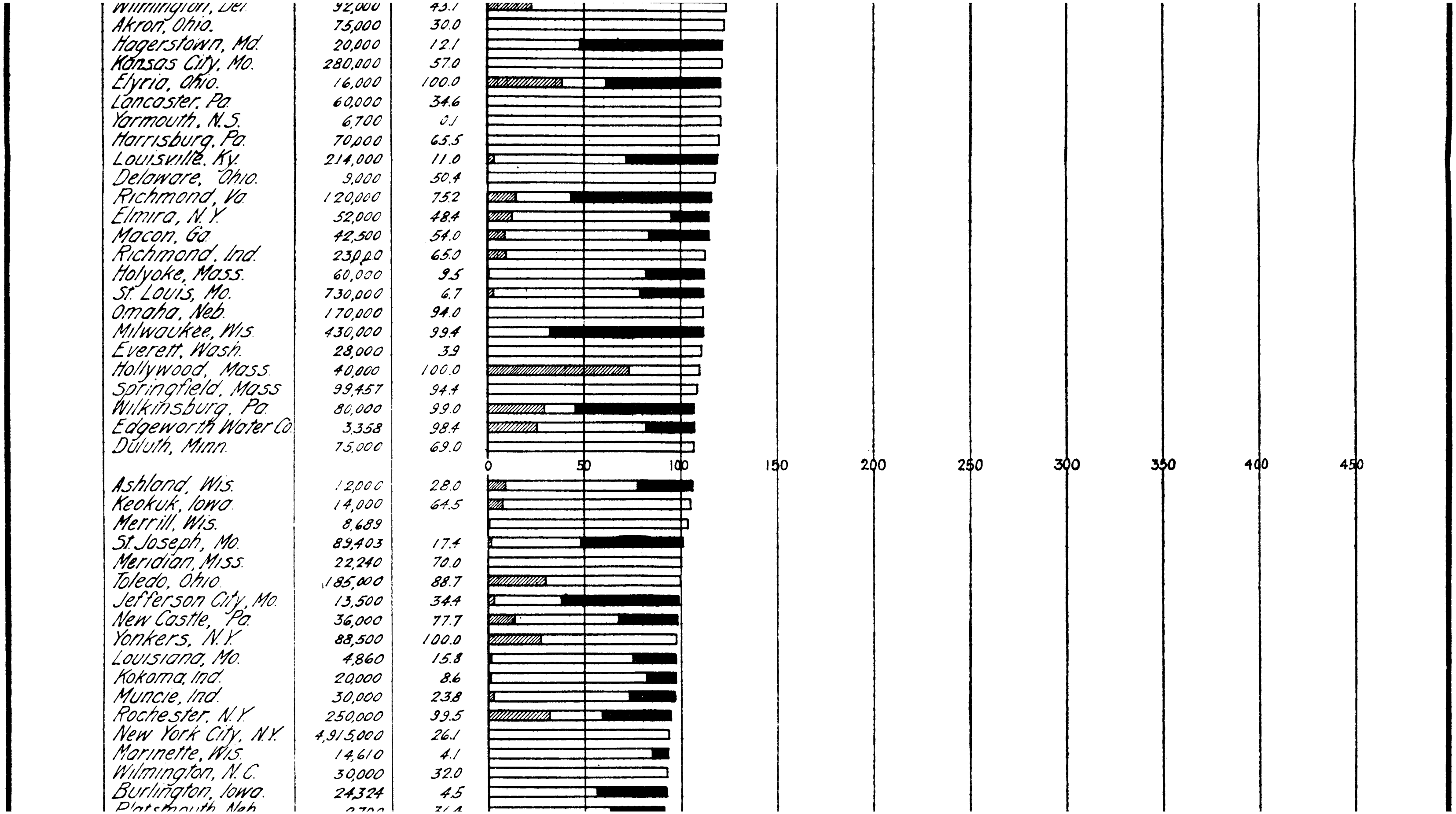
1914

CITY	POPULATION	PER CENT TAPS METERED
Tacoma, Wash.	100,000	11.6
Walkerville, Ont.	7,500	8.3
Saginaw, Mich.	29,600	4.1
San Lorenzo, Cal.	2,000	1.5
Buffalo, N.Y.	450,000	4.9
Spokane, Wash.	104,402	44.0
Troy, N.Y.	70,000	2.5
Norwich, N.Y.	8,000	0.7
Brockville, Ont.	9,500	
Cheyenne, Wyo.	13,000	
Scottdale Pa.	8,500	3.5
Sunbury Pa.	15,000	2.7
Albany, N.Y.	102,344	31.2
Chicago, Ill.	2,372,000	6.1
Erie, Pa.	72,000	3.0
Denver, Col.	220,000	0.67
Salt Lake City, Utah	100,000	6.5
Rahway, N.J.	10,000	9.4
Auburn, N.Y.	36,363	9.0
Philadelphia, Pa.	1,611,000	4.6
Evansville Ind.	55,000	0.5

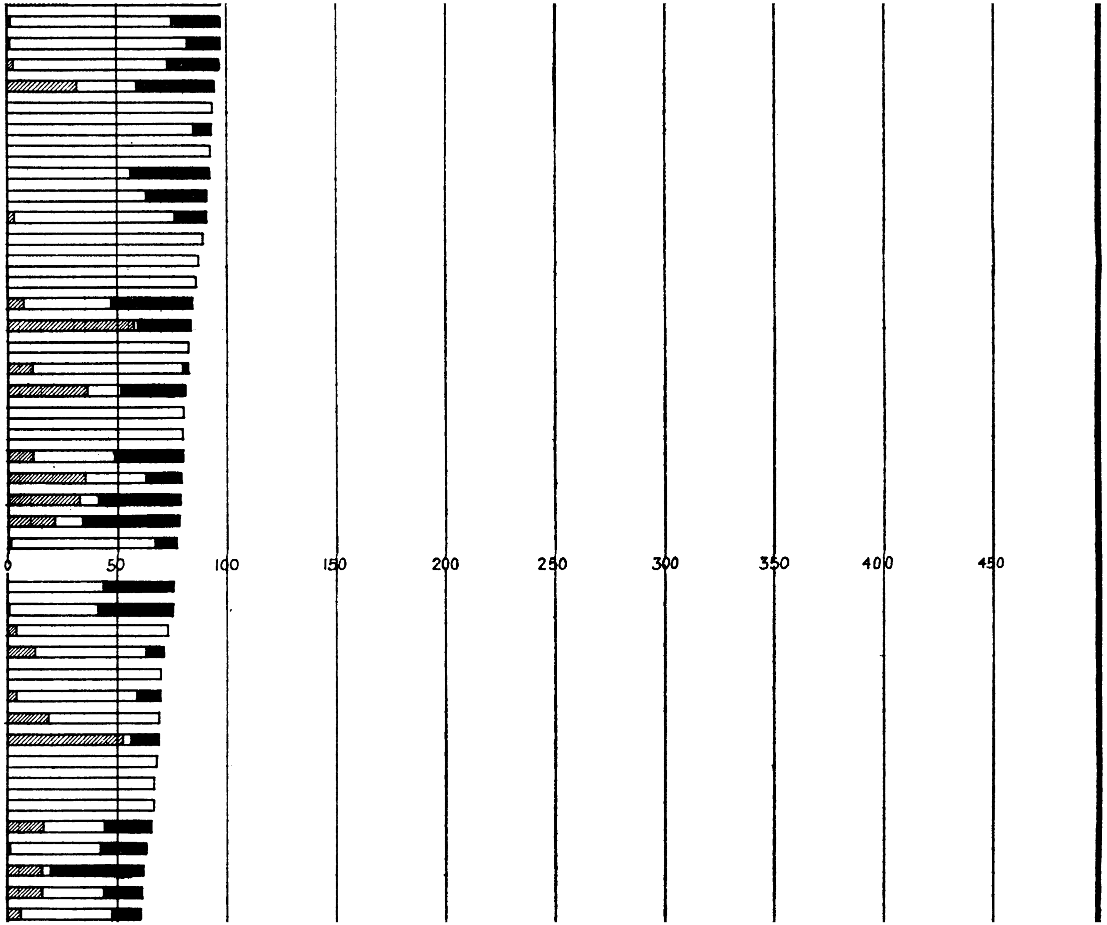


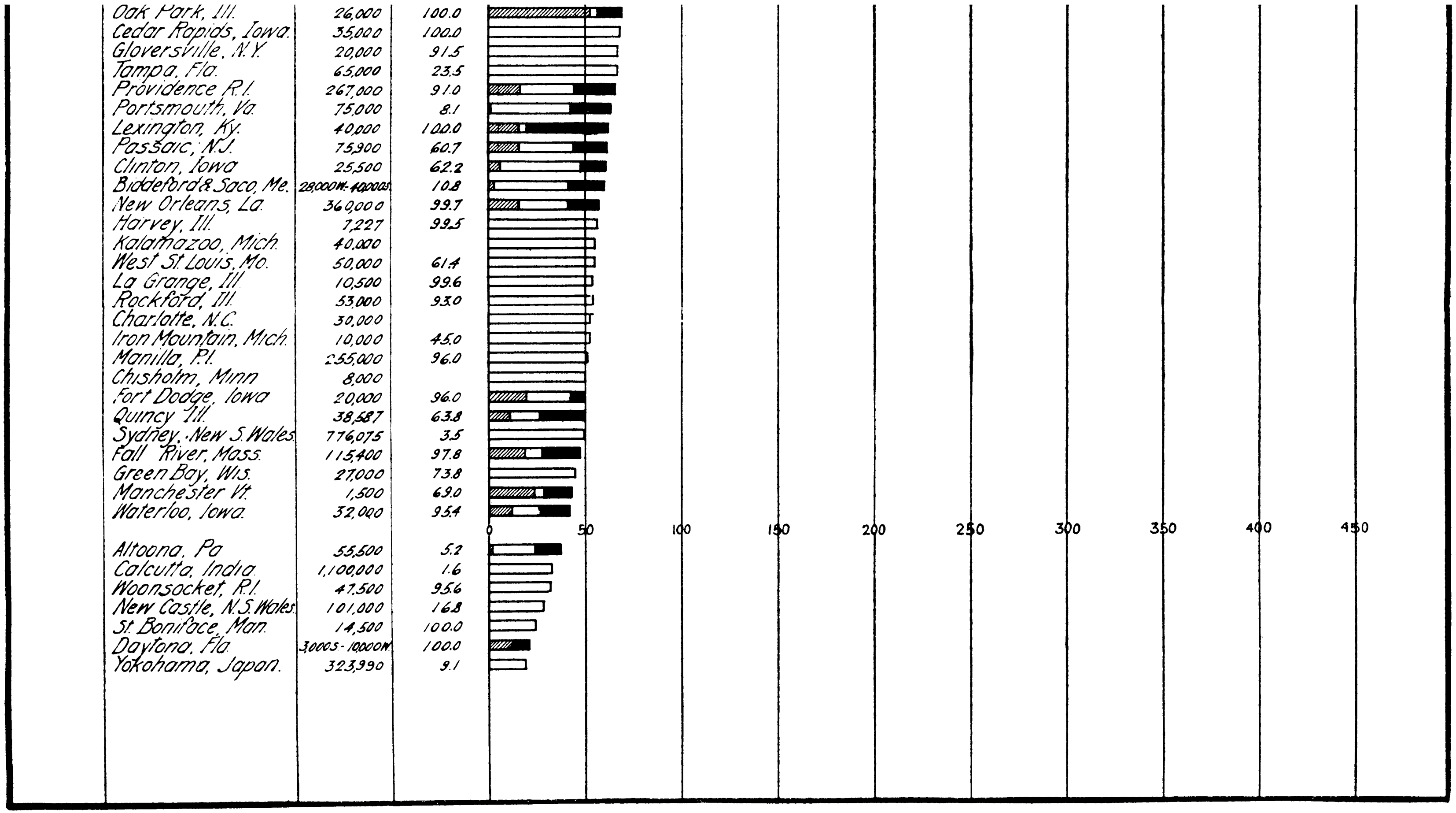
Albany, N.Y.	102,344	31.2
Chicago, Ill.	2,372,000	6.1
Erie, Pa.	72,000	3.0
Denver, Col.	220,000	0.67
Salt Lake City, Utah	100,000	6.5
Rahway, N.J.	10,000	9.4
Auburn, N.Y.	36,363	9.0
Philadelphia, Pa.	1,611,000	4.6
Evansville, Ind.	55,000	0.5
Grand Rapids, Mich.	90,000	46.7
Hoquiam, Wash.	12,000	20.5
Washington, D.C.	353,000	58.9
St. Catherine, Ont.	17,000	3.2
Augusta, Maine	11,832	7.1
Clarksburg, W. Va.	16,000	1.5
Williamsport, Pa.	40,000	1.4
Jersey City, N.J.	300,000	14.5
Port Arthur, Ont.	18,000	14.7
Miles City, Mont.	6,000	86.6
Allentown, Pa.	55,700	0.7
Appletown, Wis.	17,000	9.3
Rensselaer, N.Y.	11,000	7.9
Ogdensburg, N.Y.	18,000	0.2
Stockton, Cal.	30,000	11.2
Havana, Cuba	400,000	0.7
Fargo, N.D.	16,000	6.3
Los Angeles, Cal.	516,300	77.9
Buffalo (Suburbs), N.Y.	50,000	100.0
Streator, Ill.	14,000	10.6
Toronto, Ont.	450,000	3.7
Mt. Vernon, Ind.	5,800	9.0
Baltimore, Md.	595,000	3.2
Wilmington, Del.	92,000	43.7
Akron, Ohio.	75,000	30.0
Hagerstown, Md.	20,000	12.1
Kansas City, Mo.	280,000	57.0
Elyria, Ohio.	16,000	100.0
Lancaster, Pa.	60,000	34.6
Yarmouth, N.S.	6,700	0.1
Harrisburg, Pa.	70,000	65.5
Louisville, Ky.	214,000	11.0




Wilmington, Del. 92,000
Akron, Ohio. 75,000 30.0
Hagerstown, Md. 20,000 12.1
Kansas City, Mo. 280,000 57.0
Elyria, Ohio. 16,000 100.0
Lancaster, Pa. 60,000 34.6
Yarmouth, N.S. 6,700 0.1
Harrisburg, Pa. 70,000 65.5
Louisville, Ky. 214,000 11.0
Delaware, Ohio. 9,000 50.4
Richmond, Va. 120,000 75.2
Elmira, N.Y. 52,000 48.4
Macon, Ga. 42,500 54.0
Richmond, Ind. 23,000 65.0
Holyoke, Mass. 60,000 9.5
St. Louis, Mo. 730,000 6.7
Omaha, Neb. 170,000 94.0
Milwaukee, Wis. 430,000 99.4
Everett, Wash. 28,000 3.9
Hollywood, Mass. 40,000 100.0
Springfield, Mass 99,457 94.4
Wilkinsburg, Pa. 80,000 99.0
Edgeworth Water Co. 3,358 98.4
Duluth, Minn. 75,000 69.0
Ashland, Wis. 12,000 28.0
Keokuk, Iowa 14,000 64.5
Merrill, Wis. 8,689
St. Joseph, Mo. 89,403 17.4
Meridian, Miss. 22,240 70.0
Toledo, Ohio 185,000 88.7
Jefferson City, Mo. 13,500 34.4
New Castle, Pa. 36,000 77.7
Yonkers, N.Y. 88,500 100.0
Louisiana, Mo. 4,860 15.8
Kokomo, Ind. 20,000 8.6
Muncie, Ind. 30,000 23.8
Rochester, N.Y. 250,000 99.5
New York City, N.Y. 4,915,000 26.1
Marinette, Wis. 14,610 4.1
Wilmington, N.C. 30,000 32.0
Burlington, Iowa. 24,324 4.5
0
50
100
150
200
250
300
350
400
450

Louisiana, Mo.	4,860	15.8
Kokoma, Ind.	20,000	8.6
Muncie, Ind.	30,000	23.8
Rochester, N.Y.	250,000	99.5
New York City, N.Y.	4,915,000	26.1
Marinette, Wis.	14,610	4.1
Wilmington, N.C.	30,000	32.0
Burlington, Iowa.	24,324	4.5
Platsmouth, Neb.	2,700	36.4
Fort Smith, Ark.	28,000	26.6
Lincoln, Ill.	7,300	42.6
Dallas, Ore.	2,500	55.5
Council Bluffs, Iowa.	32,000	75.5
Racine, Wis.	41,000	72.8
Corning, N.Y.	14,900	99.0
Galt, Ont.	12,000	40.0
Memphis, Tenn.	175,000	58.7
San Diego, Cal.	85,000	100.0
Clarksville, Tenn.	10,000	16.7
New Albany, Ind.	25,000	8.8
Victoria, B.C.	45,000	
Madison, Wis.	27,000	99.2
Monroe, Wis.	3,000	100.0
Utica, N.Y.	95,000	99.3
Ripon, Wis.	3,800	17.3
Eveleth, Minn.	8,000	4.0
Brunswick, Me.	6,000	44.0
Yazoo City, Miss.	6,796	84.1
Pine Bluff, Ark.	16,000	100.0
Jacksonville, Fla.	81,000	77.4
Wichita, Kan.	54,545	43.5
Worcestor, Mass.	160,000	98.0
Oak Park, Ill.	26,000	100.0
Cedar Rapids, Iowa.	35,000	100.0
Gloversville, N.Y.	20,000	91.5
Tampa, Fla.	65,000	23.5
Providence R.I.	267,000	91.0
Portsmouth, Va.	75,000	8.1
Lexington, Ky.	40,000	100.0
Passaic, N.J.	75,900	60.7
Clinton, Iowa	25,500	62.2





Oak Park, Ill.	26,000	100.0
Cedar Rapids, Iowa.	35,000	100.0
Gloversville. N.Y.	20,000	91.5
Tampa. Fla.	65,000	23.5
Providence R.I.	267,000	91.0
Portsmouth, Va.	75,000	8.1
Lexington, Ky.	40,000	100.0
Passaic, N.J.	75,900	60.7
Clinton, Iowa	25,500	62.2
Biddeford & Saco, Me.	28,000W.-40,000S.	10.8
New Orleans, La.	360,000	99.7
Harvey, Ill.	7,227	99.5
Kalamazoo, Mich.	40,000	
West St. Louis, Mo.	50,000	61.4
La Grange, Ill.	10,500	99.6
Rockford, Ill.	53,000	93.0
Charlotte. N.C.	30,000	
Iron Mountain. Mich.	10,000	45.0
Manilla, P.I.	255,000	96.0
Chisholm, Minn	8,000	
Fort Dodge, Iowa	20,000	96.0
Quincy Ill.	38,587	63.8
Sydney, New S. Wales.	776,075	3.5
Fall River, Mass.	115,400	97.8
Green Bay, Wis.	27,000	73.8
Manchester Vt.	1,500	69.0
Waterloo, Iowa.	32,000	95.4
Altoona. Pa	55,500	5.2
Calcutta, India.	1,100,000	1.6
Woonsocket, R.I.	47,500	95.6
New Castle, N.S. Wales.	101,000	16.8
St. Boniface, Man.	14,500	100.0
Daytona. Fla.	3,000S.-10,000W.	100.0
Yokohama, Japan.	323,990	9.1

In conclusion, we would call attention to the fact which seems to be brought out by our diagram, that the per capita water consumption of a city does not depend upon its size, nor does it seem to depend entirely upon the percentage of taps metered. The largely metered cities, as a rule, are found well down in our diagram; but there are notable exceptions of cities maintaining low per capita rates, although only partially metered.

Respectfully submitted,
John N. Chester,
Alexander Potter,
H. J. Montoulieu,
W. S. Cramer,
E. E. Davis,
Edward S. Cole,
Chairman.

$\text{Col. } 32 = \dfrac{\text{Col. } 9 - \text{Col. } 21}{\text{Col. } 8}$ $\text{Col. } 33 = \dfrac{\text{Col. } 19}{5}$

Note:
Col. 32 is correct only when Non Domestic Consumption is fully metered.
Col. 33 is correct assuming 5 persons per meter.
Note:
(a)—Metered houses, with two families or more, are classed as commercial.
* Includes commercial.

CITY	MUNICIPAL OR PRIVATE	PUMPED OR GRAVITY	AREA SQ. MI.	MILES OF MAINS	RANGE OF PRESSURES	RANGE OF ELEVATIONS	POPULATION	GALLONS DAILY CONSUMPTION
1	2	3	4	5	6	7	8	9
Akron, Ohio	M	P	12.0	139.0	25–135	....	75,000	9,180,000
Albany, N. Y.	M	P	15.7	151.2	15–90	20–280	102,344	22,486,000
Altoona, Pa.	M	G	4.0	89.3	25–98	1181–1375	55,500	2,060,000
Appleton, Wis.	M	P	6.5	45.0	30–65	0–70	17,000	2,380,000
Ashland, Wis.	P	P	3.0	30.7	20–125	0–100	12,000	1,275,000
Auburn, N. Y.*	M	P	4.095	67.8	25–115	....	36,363	6,550,000
Augusta, Me.	M	P & G	3.2	45.18	15–130	0–350	11,832	1,895,315
Allentown, Pa.	M	P	4.9	80.0	30–100	230–420	55,700	7,900,000
Baltimore, Md.	M	P & G	30.7	789.0	40–110	0–460	595,000	75,200,000
Beloit, Wis.	P	......	4.0	28.3	50–90	10–30	18,000	....
Biddeford and Saco, Me.	P	P	32.0	67.05	22–83	0–149	28,000 W.– 40,000 S.	1,736,000
Brockville, Ont.	M	P	2.0	20.37	35–75	10–140	9,500	2,480,000
Brunswick, Me.	M	P	2.0	16.0	50–100	25–100	6,000	458,000
Buffalo, N. Y.	M	P	30.0	572.0	20–60	5–120	450,000	139,000,000
Buffalo (Suburbs), N. Y.	P	P	75.0	115.0	50–100	600–800	50,000	6,576,247
Burlington, Ia.*	P	P	4.0	48.48	25–100	0–171.5	24,324	2,250,000
Calcutta, India	M	P	21.0	360.0	20–120	....	1,100,000	36,000,000
Cedar Rapids, Ia.	M	P	8.0	66.0	60–120	....	35,000	2,400,000
Charlotte, N. C.	M	P	6.0	75.0	45–95 & 85–135	640–765	30,000	1,594,000
Cheyenne, Wyo.	M	G	4.0	30.0	115–130	6030–6100	13,000	3,360,000
Chicago, Ill.	M	P	....	2400.0	25–60	....	2,372,000	518,000,000
Chisholm, Minn.*	M	P	1.5	10.0	85–98	0–117	8,000	400,000
Clarksburg, W. Va.	M	P	2.0	24.0	55–145	935–1160	16,000	2,535,000
Clarksville, Tenn.	M	P	3.0	15.0	40–110	0–200	10,000	800,000
Corning, N. Y.	M	P	3.1	27.14	4–100	918–1165	14,900	1,240,000
Council Bluffs, Ia.	M	P	5.0	59. ±	0–120	20–322	32,000	2,750,000
Clinton, Ia.	P	P	5.87	50.43	50–100	....	25,500	1,570,000
Dallas, Ore.	P	G	4.0	13.5	85	Level	2,500	221,920
Daytona, Fla.	M	P	8.0	11.58	43–90	6–25	3,000 S.– 10,000 W.	130,000
Delaware, Ohio	P	P	....	23.0	50–65	....	9,000	1,058,000
Denver, Colo.	P	P & G	59.5	533.0	45–100	0–310	220,000	43,400,000
Duluth, Minn.	M	P	....	146.0	10–135	5–800	75,000	8,000,000±
Edgeworth Water Co.	P	P	2.014	12.3	8–117	720–915	3,358	358,000
Elmira, N. Y.	P	P	8.23	97.7	65–140	....	52,000	6,000,000
Elyria, Ohio	M	P	5.0	60.0	35–45	150–202	16,000	1,938,000
Erie, Pa.	M	P	....	143.0	15–120	0–307	72,000	15,700,000
Evansville, Ind.	M	P	6.5	116.45	35–50	40–65	55,000	9,797,800
Eveleth, Minn.	M	P	3.0	10.0	70–140	0–530	8,000	609,207
Everett, Wash.	P	P & G	9.0	84.29	50–125	....	28,000	3,103,940

CONSUMPTION COMMITTEE—1914

John N. Chester
Alexander Potter
H. J. Montoulieu

W. S. Cramer
E. E. Davis
E. S. Cole,
Chairman.

PER CENT ALLOWED PUMP SLIP	PER CAPITA DAILY	TOTAL TAPS	TOTAL METERS	PER CENT METERS	GALLONS PER DAY METERED REGISTRATION	PER CENT	MINIMUM NIGHT RATE	PER CENT OF DAY RATE	OFFICIAL REPORTING
10	11	12	13	14	15	15*A*	16	16*A*	
4.0	123.0	14,000	4,200	30.0	....	....	2,500,000	27.0	H. H. Frost, Supt.
......	220.0	18,428	5,756	31.2	....	....	....	....	J. B. Kilbourn, Supt.
......	37.3	13,215	680	5.15	777,200	37.5	....	....	C. B. Campbell, Secy.
20.0	140.0	7,027	655	9.33	....	....	....	....	C. H. Vinal, Supt.
......	106.0	1,981	555	28.0	446,000	35.0	$\left\{520{,}000\ \begin{matrix}6\text{ pm}\\6\text{ am}\end{matrix}\right\}$	41.0	Sam Wheeler, Supt.
7.8	180.0	8,309	750	9.0	1,450,000	22.2	4,500,000	68.7	J. Walter Ackerman, Engr.
......	160.0	2,090	149	7.14	105,000	5.5	....	....	W. B. Getchell.
0	141.9	13,180	94	0.7	286,100	3.6	5,000,000	63.0	E. W. Meckley, Asst. Engr.
6.0	126.0	114,200	3,600	3.15	18,400,000	24.5	52,000,000	69.0	Robt. L. Clemmitt, Asst. Water Engr.
......	......	2,357	1,984	84.1	930,000	....	....	....	Beloit Water, Gas & Electric Co.
3.0	60.0±	4,176	451	10.8	430,750	24.8	....	....	A. N. Bennie.
0	261.0	....	2	....	....	....	1,150,000	46.0	G. H. Bryson.
2.5	76.0	1,000	940	94.0	306,800	66.8	30% Est.	30.0	
......	309.0	81,062	4,004	4.94	41,400,000	29.8	....	....	H. L. Lyons, Dep. Water Commr.
......	131.5	3,211	3,247	100.0	....	....	....	....	Western New York Water Co.
6.2	92.6	4,445	200	4.5	882,000	39.2	1,250,000	56.0	Frank Lawlor, Supt.
4.0	33.0	150,000	2,361	1.57	....	....	6,600,000	18.3	Arthur Perin.
0	68.6	6,000	6,000	100.0	....	....	....	....	City Water Works.
......	53.1	....	4,200	....	....	....	30%	30.0	W. E. Vest, Supt.
......	259.0	1,600	....	....	....	....	2,500,000	74.0	R. D. Goodrich, City Engr.
9.0	218.0	277,000	16,969	6.1	118,000,000	22.8	....	....	W. J. McCourt, Supt.
10.0	50.0	700	....	....	....	....	....	....	C. J. Sullivan, Supt.
......	158.0	2,700	40	1.5	1,000,000	39.5	50%	50.0	S. G. Highland, Secy. and Genl. Supt.
10.0	80.0	1,200	200	16.7	....	....	....	....	S. J. Lowe, Supt.
4.0	83.3	2,753	2,721	99.0	1,240,000	100.0	200,000	16.0	Wm. O. Drake, Supt.
2.0	86.0	6,100	4,600	75.5	....	....	....	....	S. L. Etnyre, Supt.
3.0	61.4	3,621	2,257	62.2	477,000	30.4	....	....	A. W. W. & G. Co.
......	88.8	640	355	55.5	....	....	....	....	H. V. Gates, Dallas Water Co.
1.0	20.0±	478	478	100.0	118,550	91.2	96,000	74.0	Geo. A. Main, Supt.
5.0	117.6	2,100	1,056	50.4	....	....	50%	50.0	C. W. Wiles, Supt.
......	197.0	44,500	300	0.67	3,750,000	....	....	....	C. F. Catchpole, Asst. Genl. Mgr.
......	106.5±	10,900	7,525	69.0	....	....	....	....	E. W. Kelly, Engr.
5.0	106.6	700	687	98.4	166,360	46.5	119,280	33.3	Chester & Fleming, Engrs.
......	115.0	8,073	3,902	48.4	1,690,000	28.2	2,000,000	33.0	F. D. Hill, G. M.
3.0	121.1	3,650	3,650	100.0	1,577,714	81.4	743,000	38.3	J. B. Daly, Ch. Clerk.
0	218.0	17,433	535	3.0	4,680,000	29.8	11,050,000	70.4	E. W. Humphreys.
3.0	178.0	10,000	50	0.5	....	....	6,500,000	66.4	W. H. Durbin, Gen. Mgr.
10.0	76.1	750	30	4.0	....	....	....	....	F. E. Forristel, Supt.
......	111.0	5,489	213	3.9	1,063,000	34.2	2,000,000	64.4	

$$\text{Col. 32} = \frac{\text{Col. 9} - \text{Col. 21}}{\text{Col. 8}} \qquad \text{Col. 33} = \frac{\text{Col. 19}}{5}$$

Note:
Col. 32 is correct only when Non Domestic Consumption is fully metered.
Col. 33 is correct assuming 5 persons per meter.
Note:
(A)—Metered houses, with two families or more, are classed as commercial.
* Includes commercial.

CITY	METERED DOMESTIC USE			NON-DOMESTIC CONSUMPTION				
				Total			Industrial	
	No. Meters	Gallons Daily Registration	Gallons per Day per Meter	No. Meters	Gallons Daily Registration	Gallons per Day per Meter	No. Meters	Gallons Daily Registration
	17	18	19	20	21	22	23	24
Akron, Ohio								
Albany, N. Y								
Altoona, Pa	396	61,200	154.5	284	716,000	2,520	27	334,000
Appleton, Wis	572			83			10	
Ashland, Wis	283	109,000	385.0	272	337,000	1,240	41	276,000
Auburn, N. Y	0			750	1,453,000	1,937	115	732,000
Augusta, Me								
Allentown, Pa	13	7,100	546.0	81	279,000	3,444	37	191,000
Baltimore, Md								
Beloit, Wis	1,636	190,000	116.0	348	740,000	2,126	13	572,000
Biddeford and Saco, Me	329	95,400	290.0	122	335,350	2,749	34	280,000
Brockville, Ont								
Brunswick, Me	854	95,800	112.0	86	211,000	2,453	10	186,000
Buffalo, N. Y				4,004	41,400,000	10,340		
Buffalo (Suburbs), N. Y	3,154	439,000	139.0	93	4,930,000	53,000	93	4,930,000
Burlington, Ia				200	882,000	4,410		
Calcutta, India								
Cedar Rapids, Ia								
Charlotte, N. C								
Cheyenne, Wyo								
Chicago, Ill								
Chisholm, Minn								
Clarksburg, W. Va				40	1,000,000	25,000	40	1,000,000
Clarksville, Tenn								
Corning, N. Y	2,432	862,000	354.0	289	378,000	1,305	24	250,000
Council Bluffs, Ia								
Clinton, Ia	1,683(a)	131,000(a)	78.0	574(a)	346,000(a)	603	63	157,000
Dallas, Ore				24			8	
Daytona, Fla	410	66,800	163.0	68	51,750	760	59	45,500
Delaware, Ohio								
Denver, Colo				300	3,750,000	1,250	251	1,538,000
Duluth, Minn								
Edgeworth Water Co	670	86,700	129.0	17	79,660	4,690	9	74,300
Elmira, N. Y	3,857	650,000	169.0	45	1,040,000	23,100	45	1,040,000
Elyria, Ohio*	3,438	620,414	181.0		957,300		33	752,400
Erie, Pa				535	4,680,000	8,750	535	4,680,000
Evansville, Ind								
Eveleth, Minn	0	0	0	17	255,800	15,000		
Everett, Wash								

John N. Chester
Alexander Potter
H. J. Montoulieu

W. S. Cramer
E. E. Davis
E. S. Cole,
Chairman.

NON-DOMESTIC CONSUMPTION							DOMESTIC PER CAPITA		OFFICIAL REPORTING
Industrial	Commercial			Public					
Gallons per Day per Meter	No. Meters	Gallons Daily Registration	Gallons per Day per Meter	No. Meters	Gallons Daily Registration	Gallons per Day per Meter			
25	26	27	28	29	30	31	32	33	
......	......	......	......	......	......	......	......	......	H. H. Frost, Supt.
......	......	......	......	......	......	......	......	......	J. B. Kilbourn, Supt.
12,370	257	382,000	1,486	......	......	......	24.0	31.0	C. B. Campbell, Secy.
......	73	......	......	......	......	......	......	......	C. H. Vinal, Supt.
6,732	215	......	......	16	61,200	3,825	78.0	77.0	Sam Wheeler, Supt.
6,360	584	456,500	781	51	264,500	5,188	140.0	......	J. Walter Ackerman, Engr.
......	......	......	......	......	......	......	......	......	W. B. Getchell.
5,162	44	88,600	2,014	......	......	......	137.0	109.0	E. W. Meckley, Asst. Engr.
......	......	......	......	......	......	......	......	......	Robt. L. Clemmitt, Asst. Water Engr.
44,000	305	94,900	311	30	73,100	2,436	......	23.0	Beloit Water, Gas & Electric Co.
8,235	63	42,600	677	25	12,750	510	41.±	58.0	A. N. Bennie.
......	......	......	......	......	......	......	......	......	G. H. Bryson.
18,600	76	25,000	329	......	......	......	41.0	22.0	
......	4,004	41,400,000	10,340	......	......	......	217.0	......	H. L. Lyons, Dep. Water Commr.
53,000	......	......	......	......	......	......	33.0	28.0	Western New York Water Co.
......	......	......	......	......	......	......	56.0	......	Frank Lawlor, Supt.
......	......	......	......	......	......	......	......	......	Arthur Perin.
......	......	......	......	......	......	......	......	......	City Water Works.
......	......	......	......	......	......	......	......	......	W. E. Vest, Supt.
......	......	......	......	......	......	......	......	......	R. D. Goodrich, City Engr.
......	......	......	......	......	......	......	......	......	W. J. McCourt, Supt.
......	......	30,000	......	......	......	......	......	......	C. J. Sullivan, Supt.
25,000	......	......	......	......	......	......	96.0	......	S. G. Highland, Secy and Genl. Supt.
......	......	......	......	......	......	......	......	......	S. J. Lowe, Supt.
10,420	252	108,500	430	13	22,250	1,712	58.0	71.0	Wm. O. Drake, Supt.
......	......	......	......	......	......	......	......	......	S. L. Etnyre, Supt.
2,492	472(a)	119,000(a)	252	39	70,000	1,794	48.0	16.0	A. W. W. & G. Co.
......	12	......	......	4	......	......	......	......	H. V. Gates, Dallas Water Co.
7,700	—Included	d in Industri	al.	9	6,270	697	12.0±	33.0	Geo. A. Main, Supt.
......	......	......	......	......	......	......	......	......	C. W. Wiles, Supt.
6,130	0	0	0	49	2,212,000	45,140	180.0	......	C. F. Catchpole, Asst. Genl. Mgr.
......	......	......	......	......	......	......	......	......	E. W. Kelly, Engr.
8,255	3	1,100	370	5	4,250	850	83.0	26.0	Chester & Fleming, Engrs.
23,100	......	......	......	......	......	......	95.0	34.0	F. D. Hill, G. M.
22,800	179	115,800	647	......	89,100	......	61.3	36.0	J. B. Daly, Ch. Clerk.
8,750	......	......	......	......	......	......	153.0	......	E. W. Humphreys.
......	......	......	......	......	......	......	......	......	W. H. Durbin, Gen. Mgr.
......	......	......	......	17	255,800	15,000	44.0	......	F. E. Forristel, Supt.
......	......	......	......	......	......	......	......	......	

REPORT OF WATER CONSUMPTION

CITY	MUNICIPAL OR PRIVATE	PUMPED OR GRAVITY	AREA SQ. MI.	MILES OF MAINS	RANGE OF PRESSURES	RANGE OF ELEVATIONS	POPULATION	GALLONS DAILY CONSUMPTION
1	2	3	4	5	6	7	8	9
Fargo, N. D.	M	P	3.0	36.0	40–100	895–905	16,000	2,191,800
Fort Dodge, Ia.	M	P	4.0	26.0	35–110	0–150	20,000	1,000,000
Fort Smith, Ark.	M	P	....	50.5	45–150	....	28,000	2,531,000
Fall River, Mass.	M	P	....	118.0	80	129	115,400	5,334,000
Galt, Ont.	M	P	4.0	36.0	90–120	0–200	12,000	1,000,000
Gloversville, N. Y.	M	G	....	39.88	45–135	....	20,000	1,340,000
Grand Rapids, Mich.	M	P	17.5	203.0	15–105	5–200	90,000	15,832,500
Green Bay, Wis.	P	P	....	56.0	40–100	....	27,000	1,204,000
Hagerstown, Md.	P	G	10.0	53.0	26–58	552–620	20,000	2,444,800
Harrisburg, Pa.	M	P	....	91.0	30–84	310–430 L. S. 430–520 H. S.	70,000	8,390,600
Harvey, Ill.	......	......	2.25	18.0	40–90	Level	7,227	407,000
Holyoke, Mass.	M	G	23.0	92.67	65–105	60–380	60,000	6,780,000
Hollywood*	P	P	15.0	215.0	25–120	100–650	40,000	4,400,000
Hoquiam, Wash.	P	P	3.0	32.0	85–105	11–200	12,000	2,080,000
Havana, Cuba	M	P & G	12.0	250.0	15–45	0–250	400,000	55,000,000
Iron Mountain, Mich.	M	P	3.0	20.0	60–110	....	10,000	526,000
Jacksonville, Fla.	M	P	....	59.56	40–62.5	0–37	81,000	5,675,292
Jefferson City, Mo.	P	P	1.48	19.71	19–120	121–300	13,500	1,335,000
Jersey City, N. J.	M	G	29.2	225.0	25–70	1–70	300,000	44,000,000
Kokomo, Ind.	P	P	8.26	45.12	50–100	....	20,000	1,950,000
Keokuk, Ia.	P	P	4.875	30.62	50–130	....	14,000	1,468,000
Kalamazoo, Mich.	M	P	9.0	82.0	45–65	0–100	40,000	2,202,500
Kansas City, Mo.	M	P	60.0	542.0	30–150	22–300	280,000	32,973,000
La Grange, Ill.	......	P	2.0	70.0	40–90	Level	10,500	576,000
Lake Charles, La.	P	......	5.0	13.0	30–125	3–15	15,000	....
Lancaster, Pa.	M	P	4.0	70.0	25–80	....	60,000	7,247,000
Lincoln, Ill.	M	P	3.0	22.0	36–51	20–46	7,300	651,138
Litchfield, Ill.	P	P	3.5	8.0	30–80	25–125	7,000	....
Los Angeles, Cal.	M	P & G	107.6	872.6	20–130	160–870	516,300	51,700,000
Louisville, Ky.	P	P	25.0	387.36	40–75	450–550	214,000	25,545,246
Louisiana, Mo.	P	P	1.74	10.03	95–140	....	4,860	475,000
Lexington, Ky.	P	P	6.0	76.0	40–120	928–1019	40,000	2,483,742
Macon, Ga.	M	P	8.3	81.76	10–107	300–512	42,500	4,885,000
Madison, Wis.	M	P	4.0	75.96	50–85	0–125	27,000	2,127,000
Manchester, Vt.	P	......	3.0	12.0	65–125	....	1,500	64,000
Memphis, Tenn.	M	P	22.0	258.0	45–60	216–321	175,000	14,500,000
Marinette, Wis.	P	P	4.84	35.60	40–110	....	14,610	1,363,270
Meridian, Miss.	M	P	....	46.0	70–150	10–120	22,240	2,224,000
Merrill, Wis.	P	P	3.88	20.04	40–90	....	8,689	908,220
Manila, P. I.	M	G	16.0	116.0	30–40	5–15	265,000	13,500,000

COMMITTEE—1914—*Continued*

PER CENT ALLOWED PUMP SLIP	PER CAPITA DAILY	TOTAL TAPS	TOTAL METERS	PER CENT METERS	GALLONS PER DAY METERED REGISTRATION	PER CENT	MINIMUM NIGHT RATE	PER CENT OF DAY RATE	OFFICIAL REPORTING
10	11	12	13	14	15	15*A*	16	16*A*	
5.0	137.0	2,400	150	6.3	......	......	......	....	F. L. Anders, City Engr.
5.0	50.0	2,600	2,500	96.0	548,000	54.8	300,000	30.0	John W. Proy.
0	90.4	4,500	1,200	26.6	786,800	31.0	......	....	W. H. Bruce, Supt.
......	46.2	9,505	9,289	97.8	4,219,000	79.0	......	....	J. J. Kirby, W. Registrar.
0	83.3	3,000	1,200	40.0	......	......	83,000	8.3	Scott Bartleman, Supt.
......	67.0	3,966	3,630	91.5	......	......	......	....	
0	176.0	21,121	9,870	46.7	6,668,300	42.1	6,177,600	39.0	L. D. Cutcheon, Sec. Mgr.
0	45.0	4,745	3,500	73.8	......	......	......	....	J. P. Flatley, Supt.
......	122.2	4,364	526	12.1	1,483,000	60.7	1,000,000	41.0	Albert Heard, Genl. Mgr.
3.0	120.0	17,579	11,544	65.5	......	......	......	....	E. B. Showell, Jr., Chem. & Bact,
......	56.2	1,115	1,109	99.5	279,500	68.7	360,000	88.4	
......	113.0	4,500	429	9.5	1,932,000	28.5	3,540,000	52.2	Patrick Gear, Supt.
......	110.0	9,102	9,102	100.0	2,950,000	67.1	......	....	O. E. Wern, Sec.
6.0	173.0	1,950	400	20.5	......	......	......	....	Harry C. Heermans, Pres.
......	137.5	25,250	178	0.7	1,077,500	1.96	44,000,000	80.0	H. J. Montoulieu, Ch. Engr.
10.0	52.0	1,505	683	45.0	201,420	38.4	210,400	40.0	E. A. Croll, Supt.
4.0	70.0	10,111	7,828	77.4	......	......	3,720,000	65.5	L. E. Murphy, Supt.
5.0	99.0	1,387	477	34.4	870,820	65.2	475,000	35.7	L. B. Landman.
......	146.7	35,100	5,100	14.5	18,062,000	41.0	8,000,000	18.2	F. McCarren, Assessor.
3.0	97.5	3,831	329	8.6	323,000	16.6	......	....	A. W. W. & G. Co.
3.0	105.0	2,718	1,753	64.5	377,500	25.7	......	....	A. W. W. & G. Co.
2.0	55.0	......	......	......	......	......	1,200,000	54.5	H. A. Watson, Supt.
5.0	122.0	53,783	30,718	57.0	21,900,000	66.0	......	....	S. Y. High, Supt.
......	54.9	1,373	1,369	99.6	435,000	75.6	480,000	83.4	
......	......	700	16	2.3	......	......	......	....	F. V. Gallaugher.
......	121.0	13,000	4,500	34.6	2,600,000	35.8	2,500,000	34.5	John T. Brainard, Secy.
5.0	89.2	1,351	575	42.6	......	......	......	....	E. MacDonald.
......	......	272	30	11.0	......	......	......	....	David Davis, Mayor.
......	136.1	74,361	58,000	77.9	......	......	......	....	Wm. Mulholland, Ch. Engr.
0	119.3	39,361	4,312	11.0	10,782,470	42.2	12,000,000	47.0	Theo A. Leisen, Ch. Engr. and Supt.
3.0	97.7	827	131	15.8	118,100	24.9	......	....	A. W. W. & G. Co.
4.0	62.1	5,206	5,206	100.0	2,370,000	95.35	1,050,000	42.5	W. S. Cramer, Ch. Engr.
9.8	115.0	6,475	3,495	54.0	1,660,800	34.0	1,690,000	34.6	Cliff T. Williamson.
0	79.0	5,775	5,733	99.2	1,348,587	63.4	300,000	14.1	E. E. Parker, Supt.
......	43.0	392	271	69.0	56,650	88.5	......	....	A. B. Marsden, Treas. and Mgr.
......	83.0	24,000	14,084	58.7	2,440,000	16.8	8,000,000	55.0	W. S. Wills, Genl. Supt.
3.0	93.3	2,815	114	4.1	126,224	9.2	......	....	A. W. W. & G. Co.
0	100.0	3,672	2,560	70.0	......	......	756,160	34.0	M. L. Worrett.
3.0	104.5	1,054	......	......	......	......	......	....	A. W. W. & G. Co.
......	51.0	7,000	6,700	96.0	7,500,000	55.5	4,500,000	33.0	A. Gideau, Ch. Engr.

CITY	METERED DOMESTIC USE			NON-DOMESTIC CONSUMPTION				
				Total			Industrial	
	No. Meters	Gallons Daily Registration	Gallons per Day per Meter	No. Meters	Gallons Daily Registration	Gallons per Day per Meter	No. Meters	Gallons Daily Registration
	17	18	19	20	21	22	23	24
Fargo, N. D								
Fort Dodge, Ia	2,450	392,000	160.0	50	156,000	3,120	50	156,000
Fort Smith, Ark	806	91,600	114.0	271	695,200	2,566	30	145,700
Fall River, Mass		2,075,000			2,144,000			784,000
Galt, Ont								
Gloversville, N. Y	3,630	1,340,000	369.0					
Grand Rapids, Mich	9,058	2,325,000	256.0	812	4,343,300	5,349	742	4,311,000
Green Bay, Wis								
Hagerstown, Md	0	0	0	526	1,483,000	2,820		1,220,000
Harrisburg, Pa								
Harvey, Ill								
Holyoke, Mass	27	52,600	1948	402	1,879,400	4,675	193	963,000
Hollywood	9,102	2,950,000						
Hoquiam, Wash								
Havana, Cuba				178	1,077,500	6,050	178	1,077,500
Iron Mountain, Mich	635			48				
Jacksonville, Fla								
Jefferson City, Mo	315	46,410	147.0	162	824,420	5,090	22	716,400
Jersey City, N. J	2,200	3,300,000	1500	2,900	14,362,000	4,950	1,718	13,007,000
Kokomo, Ind	190	22,900	121.0	139	300,100	2,160	60	224,000
Keokuk, Ia	1,373(a)	106,500(a)	77.6	380(a)	271,000(a)	713	31	146,500
Kalamazoo, Mich								
Kansas City, Mo								
La Grange, Ill								
Lake Charles, La								
Lancaster, Pa								
Lincoln, Ill								
Litchfield, Ill								
Los Angeles, Cal								
Louisville, Ky	1,465	721,537	493.0	2,847	10,060,000	3,538		
Louisiana, Mo	70	6,300	90.0	61	111,800	1,833	11	95,600
Lexington, Ky		676,000			1,695,000			716,000
Macon, Ga	3,442	356,800	103.6	53	1,304,000	24,600		
Madison, Wis	5,050	945,000	187.0	683	413,587	605.5	79	157,087
Manchester, Vt	254	36,105	142.0	19	20,550	1,081	4	14,213
Memphis, Tenn	13,263	1,920,000	145.0	510	520,000	1,020		276,000
Marinette, Wis	10	664	66.0	104	125,560	1,207	35	85,000
Meridian, Miss								
Merrill, Wis	24	1,800	75.0	13	7,917	609		2,923
Manila, P. I								

NON-DOMESTIC CONSUMPTION							DOMESTIC PER CAPITA		OFFICIAL REPORTING
Industrial	Commercial			Public					
Gallons per Day per Meter	No. Meters	Gallons Daily Registration	Gallons per Day per Meter	No. Meters	Gallons Daily Registration	Gallons per Day per Meter			
25	26	27	28	29	30	31	32	33	
									F. L. Anders, City Engr.
3,120							42.0	32.0	John W. Proy.
4,855	215	480,000	2,233	26	69,500	2,673	66.0	23.0	W. H. Bruce, Supt.
	Included in Domestic				1,360,000		27.6		J. J. Kirby, W. Registrar.
									Scott Bartleman, Supt.
							67.0	74.0	
5,810				70	32,300	462	127.6	51.2	L. D. Cutcheon, Sec. Mgr.
									J. P. Flatley, Supt.
		263,000					48.0		Albert Heard, Genl. Mgr.
									E. B. Showell, Jr., Chem. & Bact.
4,990	139	694,000	4,990	70	222,400	3,177	82.0		Patrick Gear, Supt.
									O. E. Wern, Secy.
									Harry C. Heermans, Pres.
6,050							135.0		H. J. Montoulieu, Ch. Engr.
				16					E. A. Croll, Supt.
									L. E. Murphy, Supt.
32,560	121	54,220	448	19	53,780	2,830	37.8	29.4	L. B. Landman.
7,570	1,100	55,000	500	82	1,205,000	14,700	98.8		F. McCarren, Assessor.
3,733	60	51,300	8,550	13	24,800	1,907	82.5	24.0	A. W. W. & G. Co.
4,726	336(a)	102,800(a)	306	13	16,700	1,285		15.5	A. W. W. & G. Co.
									H. A. Watson, Supt.
									S. Y. High, Supt.
									F. V. Gallaugher.
									John T. Brainard, Secy.
									E. MacDonald.
									David Davis, Mayor.
									Wm. Mulholland, Ch. Engr.
							72.3	98.6	Theo. A. Leisen, Ch. Engr. and Supt.
8,691	47	8,180	174	3	8,020	2,673	75.0	18.0	A. W. W. & G. Co.
		642,000			337,000		19.7		W. S. Cramer, Ch. Engr.
							84.3	20.7	Cliff T. Williamson.
1,988	561	167,250	298	43	89,250	2,076	63.0	37.4	E. E. Parker, Supt.
3,554	8	3,630	454	7	2,707	387	28.9	28.4	A. B. Marsden, Treas. and Mgr.
					244,000		80.0	29.0	W. S. Wills, Genl. Supt.
2,430	63	35,770	568	6	4,710	785	85.0	13.0	A. W. W. & G. Co.
									M. L. Worrett.
		1,470		4	3,514	880	103.6	15.0	A. W. W. & G. Co.
									A. Gideau, Ch. Engr.

CITY 1	MUNICIPAL OR PRIVATE 2	PUMPED OR GRAVITY 3	AREA SQ. MI. 4	MILES OF MAINS 5	RANGE OF PRESSURES 6	RANGE OF ELEVATIONS 7	POPULATION 8	GALLONS DAILY CONSUMPTION 9
Miles City, Mont	M	P	0.75	18.5	50–130	0–2350	6,000	850,000
Milwaukee, Wis	M	P	25.69	505.0	15–75	10–180	430,000	47,920,000
Monroe, Wis	M	P	1.5	9.5	30–75	50–115	3,000	238,000
Mount Vernon, Ind	P	P	2.78	15.38	80–110		5,800	735,616
Muncie, Ind	P	P	11.5	57.1	35–90		30,000	2,915,272
New York City, N. Y	M & P	P & G	181.3	2793.0	10–140	0–409	4,915,000	462,900,000
New Albany, Ind	P	P	3.0	45.0	75–80	25–275	25,000	2,000,000
New Castle, N. S. Wales	M	P			0–100	0–300	101,000	2,835,000
New Castle, Pa	P	P	13.2	77.60	80–160	800–1150	36,000	3,536,000
New Orleans, La	M	P	17.0	550.0	60–70	0–15	360,000	20,600,000
Norwich, N. Y	P	G	3.0	19.6	40–60	0–50	8,000	2,225,000
Oak Park, Ill	M	P	4.5	80.0	50–50	Level	26,000	1,790,000
Ogdensburg, N. Y	M	P	6.0	35.0	5–50	245–325	18,000	2,500,000
Omaha, Neb	M	P	28.0	274.0	20–135	0–290	170,000	18,990,692
Providence, R. I	M	P	18.28	402.0	26–97	6–200	267,000	17,680,667
Passaic, N. J	P	G	7.4	73.5	44–100	10–158	75,900	4,710,000
Pine Bluffs, Ark	P	G	4.13	36.0	45–100		16,000	1,145,000
Philadelphia, Pa	M	P	65.0	1754.0	20–150	0–400	1,611,000	289,671,000
Plattsmouth, Neb	P	P	4.0	10.0	40–90	120–233	2,700	244,500
Port Arthur, Ont	M	P	2.5	38.0	70–114	617–814	18,000	2,612,500
Portsmouth, Va	P	P	17.7	143.86	40		75,000	4,867,486
Quincy, Ill	P	P	4.5	67.5	3–110	100–330	38,587	1,923,300
Racine, Wis	P	P	8.35	74.59	65–110		41,000	3,444,900
Rahway, N. J	M	P	2.5	23.75	45–48	0–30	10,000	1,827,000
Rensselaer, N. Y	P	P	2.0	20.0	50–120	10–200	11,000	1,540,000
Reno and Sparks, Nev	M	G	8.0	57.5	50–90	4500–4600	13,500	9,460,800
Richmond, Ind	P	P	4–5	48.0	40–110		23,000	2,615,175
Richmond, Va	M	P	7.5	163.0	10–86	6–210	120,000	13,861,245
Ripan, Wis	P	P	1.5	11.6	25–90	35–160	3,800	289,700
Rochester, N. Y	M	G	22.0	460.0	30–80	425–615	250,000	23,740,000
Rochester & Lake Ont. W. Co	P	P	9.5	80.21	40–225	250–660		3,890,000
Rockford, Ill	M	P	9.6	112.67	20–65	97–213	53,000	2,865,836
Scottdale, Pa	P	P & G	6.0	35.1	25–100	1020–1140	8,500	2,074,000
Saginaw, Mich	M	P		117.0	45–90	0–30	29,600	9,878,000
St. Boniface, Man	M	P	17.2	24.5	56–64	685–703	14,500	355,200
St. Catherine, Ont	M	G	5.0	55.0	73–116	266–366	17,000	2,740,000
St. Joseph, Mo	P	P	23.3	147.2	90–110		89,403	9,000,000
St. Louis, Mo	M	P	61.37	962.0	35–125	15–180	730,000	82,100,000
Salt Lake City, Utah	M	G	49.6	227.0	65–198	4250–5000	100,000	18,616,525
San Diego, Cal	M	G	38.0	325.93	50–150	0–420	85,000	6,853,863

COMMITTEE—1914—*Continued*

PER CENT ALLOWED PUMP SLIP	PER CAPITA DAILY	TOTAL TAPS	TOTAL METERS	PER CENT METERS	GALLONS PER DAY METERED REGISTRATION	PER CENT	MINIMUM NIGHT RATE	PER CENT OF DAY RATE	OFFICIAL REPORTING
10	11	12	13	14	15	15*A*	16	16*A*	
......	142.0	750	650	86.6	......	......	......	....	G. C. Pruth.
0	111.4	59,603	59,233	99.4	34,800,000	72.6	30,000,000	62.5	H. P. Bohman, Supt.
10.0	79.0	563	581	100.0	216,500	91.0	133,320	56.0	M. J. Gettings, Supt.
3.0	126.8	1,172	106	9.0	111,525	15.2	......	....	A. W. W. & G. Co.
3.0	97.2	3,742	887	23.8	774,583	26.5	......	....	A. W. W. &. G. Co.
5.0±	94.2	364,800	95,200	26.1	129,700,000	28.0	......	....	I. M. de Varona, Ch. Engr.
10.0	80.0	4,000	351	8.8	......	......	......	....	J. O. Emdris, Jr., Supt.
5.0	28.0	18,405	3,093	16.8	......	......	......	....	
3.0	98.2	7,753	6,017	77.7	1,591,200	45.0	......	....	A. W. W. & G. Co.
......	57.2	40,200	40,100	99.7	11,800,000	57.3	......	....	G. G. Earl, Genl. Supt.
......	278.0	2,063	15	0.7	......	......	......	....	J. M. Diven, Jr., Supt.
......	69.0	5,750	5,750	100.0	1,690,000	94.4	800,000	44.5	H. P. T. Matte, Supt.
......	138.9	3,000	6	0.2	......	......	1,750,000	70.0	H. A. Lord, Supt.
0	112.0	25,325	23,818	94.0	......	......	7,596,276	40.0	L. H. Marshall.
2.0	66.0	30,159	27,529	91.0	......	......	......	....	
......	62.0	7,920	4,808	60.7	2,515,000	53.2	2,600,000	55.2	W. C. Hopper, Supt.
10.0	71.6	2,267	2,267	100.0	316,600	27.6	960,000	83.8	Byron C. Fowles, Supt.
......	179.7	350,000	16,000	4.6	......	......	200,000,000	69.2	C. E. Davis, Chief.
2.0	90.5	570	208	36.4	74,150	30.3	12,000	....	H. H. Sinclair, Supt.
......	145.0	2,268	333	14.7	724,000	27.7	......	....	
3.0	64.9	10,593	862	8.1	1,711,700	35.2	......	....	A. W. W. & G. Co.
......	50.0	5,838	3,725	63.8	1,323,600	68.8	......	....	W. R. Gelston, Supt.
3.0	84.0	7,649	5,574	72.8	1,783,500	51.6	......	....	A. W. W. & G. Co.
5.0	182.7	1,908	180	9.4	......	......	......	....	A. F. Kerstein, Supt.
2.0	140.0	1,900	150	7.9	162,000	10.5	......	....	R. S. Hinckley, Supt.
......	701.0	2,300	0	0	0	0	......	....	L. O. Murphy, Local Engr.
......	113.7	5,038	3,267	65.0	1,549,000	59.0	......	....	H. A. Dell, Treas.
......	115.5	24,380	18,581	75.2	10,423,000	75.2	......	....	E. E. Davis, Supt.
5.0	76.2	700	121	17.3	40,140	13.8	134,460	47.0	W. E. Haseltine, Ripan L. & W. Co.
......	95.0	44,000	43,888	99.5	16,645,000	70.0	10,000,000	42.0	Beekman C. Little.
......	......	3,279	3,279	100.0	3,878,000	99.0	......	....	Rochester & Lake Ontario Water Co.
4.33	54.0	9,305	8,652	93.0	1,643,800	57.4	......	....	Oscar E. Bulkley.
0	244.0	2,135	75	3.5	506,000	24.4	300,000	14.5	G. S. Cheney, Supt.
0	333.7	8,350	343	4.1	920,900	9.3	......	....	G. V. Chandler, Bookkeeper.
......	24.5	......	1,500	100.0	355,200	......	......	....	M. P. Blair, City Engr.
......	161.0	4,857	153	3.15	848,000	31.0	......	....	Alex D. Milne, Supt.
3.0	101.0	12,506	2,175	17.4	4,795,000	53.3	......	....	
7.0	112.5	112,124	7,500	6.7	26,000,000	31.7	60,000,000	73.0	Edward E. Wall, Water Comm.
......	186.2	18,529	1,214	6.5	5,162,077	27.7	7,633,000	41.0	Chas. F. Barrett, Supt.
......	80.6	14,153	14,153	100.0	5,530,000	80.8	......	....	

REPORT OF WATER CONSUMPTION

CITY	METERED DOMESTIC USE			NON-DOMESTIC CONSUMPTION				
				Total			Industrial	
	No. Meters	Gallons Daily Registration	Gallons per Day per Meter	No. Meters	Gallons Daily Registration	Gallons per Day per Meter	No. Meters	Gallons Daily Registration
	17	18	19	20	21	22	23	24
Miles City, Mont	...	...	...	...	...	...	...	...
Milwaukee, Wis	40,629	...	...	59,233(a)	34,000,000(a)	574	15,500	18,300,000
Monroe, Wis	562	100,000	178.0	...	116,500	...	13	95,500
Mount Vernon, Ind	23	2,435	106.0	83	109,090	1,314	15	84,500
Muncie, Ind	536	73,658	1372.0	351	700,925	1,997	55	496,325
New York City, N. Y	...	...	...	...	...	...	...	...
New Albany, Ind	...	...	...	...	...	...	...	...
New Castle, Pa	5,321	501,200	94.0	696	1,090,000	1,565	74	838,300
New Orleans, La	36,256	6,035,000	166.0	1,680	5,785,000	3,443	Includ	ed in Comm
Norwich, N. Y	...	...	...	...	...	...	...	...
Oak Park, Ill	5,700	1,362,600	239.0	50	327,400	6,548	10	221,300
Ogdensburg, N. Y	...	...	...	...	...	...	...	...
Omaha, Neb	...	...	...	...	...	...	...	...
Providence, R. I	...	...	...	...	...	...	...	...
Passaic, N. J	4,700	1,198,000	255.0	108	1,317,000	12,190	94	1,280,000
Pine Bluffs, Ark	1,963	197,400	100.6	250	119,200	476.8	...	...
Philadelphia, Pa	...	...	...	...	...	...	...	...
Plattsmouth, Nev	...	...	...	208	74,150	358	...	...
Port Arthur, Ont	...	...	...	280	724,000	2,586	...	...
Portsmouth, Va	33	4,700	143.0	829	1,707,000	2,060	134	1,491,000
Quincy, Ill	2,893	414,500	143.0	832	909,100	1,093	136	623,300
Racine, Wis	3,863	283,500	73.0	1,711	1,500,000	876	128	1,094,000
Rahway, N. J	...	...	...	...	...	...	...	...
Rensselaer, N. Y	...	...	...	...	...	...	...	...
Reno and Sparks, Neb	...	...	...	...	...	...	...	...
Richmond, Ind	...	218,000	...	...	1,331,000	...	...	905,000
Richmond, Va	16,597	1,782,166	107.4	1,984	8,640,833	4,355	783	3,865,760
Ripan, Wis	79	5,540	70.0	42	34,600	824	9	16,460
Rochester, N. Y	42,888	7,820,000	182.5	1,000	8,825,000	8,825	400	4,570,000
Rochester & Lake Ont. W. Co	3,147	520,000	165.0	132	3,358,000	25,420	132	3,300,000
Rockford, Ill	...	...	...	...	...	...	...	...
Scottdale, Pa	20	10,800	540.0	55	495,200	9,000	30	477,900
Saginaw, Mich	114	31,000	273.0	229	889,900	3,885	67	667,000
St. Boniface, Man	...	...	...	...	...	...	...	...
St. Catherine, Ont	...	...	...	153	848,000	5,540	88	748,000
St. Joseph, Mo	775	135,000	175.0	1,400	4,660,000	3,329	135	3,593,000
St. Louis, Mo	1,945	2,191,694	1127.0	5,555	24,210,554	4,358	809	14,301,633
Salt Lake City, Utah	285	115,425	405.0	929	...	...	929*	5,046,652*
San Diego, Cal	11,985	3,072,000	256.0	2,168	2,458,000	1,134	200	615,000

COMMITTEE—1914—*Continued*

NON-DOMESTIC CONSUMPTION							DOMESTIC PER CAPITA		OFFICIAL REPORTING
Industrial	Commercial			Public					
Gallons per Day per Meter	No. Meters	Gallons Daily Registration	Gallons per Day per Meter	No. Meters	Gallons Daily Registration	Gallons per Day per Meter			
25	26	27	28	29	30	31	32	33	
....	....	....	....	...	....	....	......	......	G. C. Pruth.
1,180	57,429(a)	14,100,000(a)	245.5	254	2,500,000	9,840	32.4	......	H. P. Bohman, Supt.
7,340	....	....	....	...	....	....	40.5	35.6	M. J. Gettings, Supt.
5,633	60	8,730	145	8	15,860	1,982	108.0	21.0	A. W. W. & G. Co.
9,024	282	187,300	664	14	17,300	1,240	73.8	......	A. W. W. &. G. Co.
....	....	....	....	...	....	....	......	......	I. M. de Varona, Ch. Engr.
....	....	....	....	...	....	....	......	......	J. O. Emdris, Jr., Supt.
11,324	602	225,000	374	20	26,700	1,335	68.0	19.0	A. W. W. & G. Co.
ercial.	1,277	4,620,000	3,617	403	1,145,000	2,841	41.0	0.33	G. G. Earl, Genl. Supt.
....	....	....	....	...	....	....	......	......	J. M. Diven, Jr., Supt.
2,213	25	41,800	1,672	15	64,300	4,287	56.2	48.0	H. P. T. Matte, Supt.
....	....	....	....	...	....	....	......	......	H. A. Lord, Supt.
....	....	....	....	...	....	....	......	......	L. H. Marshall.
....	....	....	....	...	....	....	......	......	
13,620	....	....	....	14	37,000	2,643	44.7	51.0	W. C. Hopper, Supt.
....	....	....	....	...	....	....	64.0	20.0	Byron C. Fowles, Supt.
....	....	....	....	...	....	....	......	......	C. E. Davis, Chief.
....	....	....	....	...	....	....	63.0	......	H. H. Sinclair, Supt.
....	....	....	....	...	....	....	105.0	......	
11,127	651	121,400	187	44	94,600	2,150	42.0	28.6	A. W. W. & G. Co.
4,583	637	209,400	329	59	76,400	1,295	26.0	28.6	W. R. Gelston, Supt.
8,545	1,541	315,000	204	42	91,000	2,166	47.0	15.0	A. W. W. & G. Co.
....	....	....	....	...	....	....	......	......	A. F. Kerstein, Supt.
....	....	....	....	...	....	....	......	......	R. S. Hinckley, Supt.
....	....	....	....	...	....	....	......	......	L. O. Murphy, Local Engr.
....	....	180,000	....	...	246,000	....	......	......	H. A. Dell, Treas.
4,937	1,114	3,290,000	2,953	87	1,485,133	17,071	43.5	21.5	E. E. Davis, Supt.
1,829	30	12,440	415	3	5,700	1,900	67.0	14.0	W. E. Haseltine, Ripan L. & W. Co.
11,425	450	3,050,000	6,777	150	1,205,000	8,040	59.7	36.5	Beekman C. Little.
25,000	—Include	d in Domestic	.	....	58,000	....	......	33.0	Rochester & Lake Ontario Water Co.
....	....	....	....	....	570,160	....	......	......	Oscar E. Bulkley.
15,930	10	10,600	1,060	15	6,700	447	185.7	108.0	G. S. Cheney, Supt.
9,955	162	222,900	1,376	....	....	....	304.0	55.0	G. V. Chandler, Bookkeeper.
....	....	....	....	...	....	....	......	......	M. P. Blair, City Engr.
8,500	65	100,000	1,540	...	....	....	111.0	......	Alex D. Milne, Supt.
26,615	1,165	722,000	620	100	345,000	3,455	48.5	35.0	
17,678	4,515	8,844,434	1,959	231	1,064,489	4,608	79.0	225.0	Edward E. Wall, Water Comm.
5,432*	....	....	....	0	....	....	......	81.0	Chas. F. Barrett, Supt.
3,075	1,880	1,024,000	545	88	819,000 115,500 gals not metered	9,307	51.7	51.2	

CITY	MUNICIPAL OR PRIVATE	PUMPED OR GRAVITY	AREA SQ. MI.	MILES OF MAINS	RANGE OF PRESSURES	RANGE OF ELEVATIONS	POPULATION	GALLONS DAILY CONSUMPTION
1	2	3	4	5	6	7	8	9
San Lorenzo, Cal	P	P	4.0	20.9	65–90	100–200	2,000	648,000
Shamokin, Pa	M	G	19?	60.3	10–100	700–900	40,000	Not Measured
Spokane, Wash	M	P	39.25	367.22	30–165	1–710	104,402	29,869,000
Springfield, Mass	M	G	38.0	205.31	80–144	70–205	99,457	10,712,000
Stockton, Cal	P	P	10.0	74.0	40–50	1–10	30,000	4,138,132
Streator, Ill	P	P	5.5	46.0	40–110	0–42	14,000	1,840,000
Sunbury, Pa	P	P	2.0	40.0	25–100	0–80	15,000	3,424,663
Sydney, N. S. Wales	M	P & G	....	1864.0	25–75	5–360	776,075	39,048,000
Tacoma, Wash	M	P & G	25.0	300.0	25–100	24–410	100,000	46,000,000
Tampa, Fla	P	P	7.5	77.5	40–110	0–55	65,000	4,365,000
Toledo, Ohio	M	P	27.0	280.0	30–75	0–20	185,000	18,457,844
Toronto, Ont	M	......	....	526.0	40–80	245–550	450,000	58,000,000
Troy, N. Y	M	G	7.0	115.4	30–140	26–405	70,000	20,000,000
Urban Water Supply Co	P	P	....	5.0	70–80	50–75	....	2,000,000
Utica, N. Y	P	G	15.0	182.0	40–100	400–650	95,000	7,480,000
Victoria, B. C	M	G	11.0	128.0	30–91	100–255	45,000	3,602,300
Walkerville, Ont	P	P	3½	24½	65–130	6–50	7,500	2,811,560
Washington, D. C	M	P & G	70.0	57.4	22–117	0–423	353,000	57,500,000
Waterloo, Ia	M	P	12.95	48.5	60–110	844–955	32,000	1,338,621
West St. Louis, Mo	P	P	....	292.0	20–120	0–360	50,000	2,750,000
Wichita, Kan	P	P	14.45	132.59	65	....	54,545	3,820,000
Wilkinsburg, Pa	P	P	12–15	150+	10–210	750–1300	80,000	8,567,000
Williamsport, Pa	P	P & G	10.5	87.61	30–65	21–88	40,000	6,000,000
Wilmington, Del	M	P	10.2	135.0	20–93	0–270	92,000	11,416,069
Wilmington, N. C	M	P	5.0	42.0	55–60	40–72	30,000	2,800,000
Woonsocket, R. I	M	P	....	63.0	50–120	....	47,500	1,529,000
Worcester, Mass	M	G	....	258.0	85–150	481	160,000	11,115,953
Yarmouth, N. S	M	P	....	30+	50–80	40–120	6,700	808,627
Yazoo City, Miss	M	P	5.0	14.4	5–110	100–341	6,796	500,000 +
Yonkers, N. Y	M	P	2.2	148.37	30–135	0–320	88,500	8,680,000
Yokohama, Japan	M	G	7.57	149.36	30–70	4–150	323,990	6,240,000

PER CENT ALLOWED PUMP SLIP	PER CAPITA DAILY	TOTAL TAPS	TOTAL METERS	PER CENT METERS	GALLONS PER DAY METERED REGISTRATION	PER CENT	MINIMUM NIGHT RATE	PER CENT OF DAY RATE	OFFICIAL REPORTING
10	11	12	13	14	15	15*A*	16	16*A*	
1-1⅓	324.0	800	12	1.5	......	......	......	....	Chas. M. Whiting, Secy.
......	....	6,800	60	0.9	444,000	......	......	....	B. W. Haupt, Secy. Roaring Creek W. Co.
0	286.1	24,663	10,882	44.0	2,740,000	9.2	......	....	A. Lindsay, Supt.
......	108.0	13,667	12,872	94.4	6,848,000	63.9	2,000,000	18.7	E. E. Lochridge.
4-10	137.9	5,915	665	11.2	757,184	18.3	1,680,000	40.5	J. W. Hall, Mgr. (Pac. Gas & Elec. Co.)
8.0	131.0	3,892	412	10.6	775,857	42.0	1,296,000	70.0	D. E. Hoggan, Supt.
0	228.0	2,374	64	2.7	1,945,000	56.8	1,250,000	36.5	Harry Landon, Supt.
......	50.0	940,000	33,086	3.5	11,730,000	30.0	......	....	Charles W. Smith.
......	460.0	15,688	1,824	11.6	......	......	......	....	Dr. Willis E. Everette.
3.1	67.0	6,903	1,621	23.5	1,165,000	26.7	3,312,000	75.9	
6.5	99.8	28,710	25,485	88.7	13,843,300	75.0	11,000,000	60.0	
......	129.0	95,000	3,512	3.7	......	......	......	....	
......	285.7	11,726	298	2.5	1,980,000	9.9	......	....	J. M. Diven, Supt.
4.0	....	15	15	100.0	1,918,000	95.9	......	....	S. B. Severson, Maspeth, L. I.
......	78.7	12,821	12,729	99.3	6,150,000	82.2	......	....	Don. R. Sidle.
......	80.0	....	9,200	....	2,352,940	65.3	?4,636,800	....	
3-15	375.0	1,200	100	8.3	1,291,070	46.0	1,308,000	46.5	Walkerville W. Co., C. D. Brown, Secy.-Treas.
3.76	162.7	66,478	39,184	58.9	17,727,000	30.8	42,529,000	74.0	W. A. McFarland, Supt.
6.0	41.8	4,520	4,313	95.4	875,000	65.4	450,520	34.0	G. E. Shoemaker, Secy.
0	55.0	5,870	3,601	61.4	......	......	......	....	
3.0	70.0	7,092	3,083	43.5	850,000	22.2	......	....	
2.0	107.0	12,706	12,575	99.0	6,991,000	81.5	......	....	W. C. Hawley, Ch. Engr. Pa. W. Co.
......	150.0	7,125	100	1.4	1,255,404	20.9	......	....	Williamsport Water Co.
......	124.0	19,909	8,695	43.7	6,382,082	55.9	2,000,000	17.5	Edgar M. Hoopes, Jr.
......	93.3	4,500	1,442	32 0	......	......	......	....	W. E. Merritt, Supt.
......	32.2	3,625	3,466	95.6	1,315,000	86.0	445,210	29.1	Arthur F. Ballou, Supt.
......	69.5	18,650	18,276	98.0	7,880,000	70.8	......	....	Geo. W. Bachelder, Commr.
10.0	120.7	3,674	4	0.10	14,310	1.8	......	....	Geo. H. Rohnston, Supt.
3.0	73.6	1,248	1,048	84.1	......	......	......	....	James G. Butler, Supt.
0	98.1	8,964	9,921	100.0	5,438,000	62.6	......	....	E. L. Peene, Supt.
......	19.3	25,155	2,295	9.1	......	......	(?)31,221	....	S. Inone, Ch. Engr.

CITY	METERED DOMESTIC USE			NON-DOMESTIC CONSUMPTION				
				Total			Industrial	
	No. Meters	Gallons Daily Registration	Gallons per Day per Meter	No. Meters	Gallons Daily Registration	Gallons per Day per Meter	No. Meters	Gallons Daily Registration
	17	18	19	20	21	22	23	24
San Lorenzo, Cal				9			4	
Shamokin, Pa				60	444,000			
Spokane, Wash	300	656,000	2186	88	2,084,000	23,680	13	408,000
Springfield, Mass								
Stockton, Cal								
Streator, Ill	268	139,000	518.5	144	637,000	4,425	111	583,000
Sunbury, Pa				64	1,945,000	30,400	24	1,885,000
Sydney, N. S. Wales								
Tacoma, Wash	20			1,361			100	
Tampa, Fla								
Toledo, Ohio	24,803	5,538,000	223.2				682*	8,305,300*
Toronto, Ont								
Troy, N. Y							298	1,980,000
Urban Water Supply Co	8	274	34.0	7	1,918,000	274,000	6	1,918,000
Utica, N. Y	12,379	1,968,000	159.0	350	4,190,000	11,950	300*	3,985,000
Victoria, B. C	7,909	966,600	122.0				797*	1,303,540*
Walkerville, Ont				100	1,393,539	12,910	100	1,230,000
Washington, D. C	20,565	3,885,000	189.0	3,113	13,842,000	4,440	230	6,290,000
Waterloo, Ia	3,700	365,263	98.7	613	509,710	831	547	417,900*
West St. Louis, Mo								
Wichita, Kan	2,259	235,000	104.0	824	615,000	746	30	117,700
Wilkinsburg, Pa		2,036,000			4,955,000			4,765,000*
Williamsport, Pa	0	0	0	100	1,225,404	12,254	100	1,225,404
Wilmington, Del	8,437	2,107,434	250.0				258	4,274,648
Wilmington, N. C								
Woonsocket, R. I								
Worcester, Mass		2,985,000						2,492,000
Yarmouth, N. S								
Yazoo City, Miss	215	30,500	142.0					
Yonkers, N. Y	9,051	2,400,000	265.0				170	3,038,000
Yokohama, Japan								

Note—* Includes commercial.

NON-DOMESTIC CONSUMPTION							DOMESTIC PER CAPITA		OFFICIAL REPORTING
Industrial	Commercial			Public					
Gallons per Day per Meter	No. Meters	Gallons Daily Registration	Gallons per Day per Meter	No. Meters	Gallons Daily Registration	Gallons per Day per Meter			
25	26	27	28	29	30	31	32	33	
....	1	....	....	4	....	....	....	....	Chas. M. Whiting, Secy.
....	....	....	....	....	....	....	....	....	B. W. Haupt, Secy. Roaring Creek W. Co.
31,400	50	180,000	3,600	25	1,496,000	59,840	266.0	437.0	A. Lindsay, Supt.
....	....	....	....	....	....	....	....	....	E. E. Lochridge.
....	....	....	....	....	364,380	....	....	....	J. W. Hall, Mgr. (Pac. Gas & Elec. Co.)
5,252	....	....	....	33	54,000	1,636	86.0	104.0	D. E. Hoggan, Supt.
78,541	40	60,000	1,500	0	....	....	98.6	....	Harry Landon, Supt.
....	....	....	....	....	....	....	....	....	Charles W. Smith.
....	1,193	....	....	68	....	....	....	....	Dr. Willis E. Everette.
....	....	....	....	....	49,250	....	....	....	
12,180*	....	....	....	....	....	....	....	45.0	
....	....	....	....	....	....	....	....	....	
6,644	....	....	....	....	....	....	....	....	J. M. Diven, Supt.
319,667	1	55	55	....	....	....	....	7.0	S. B. Severson, Maspeth, L. I.
13,283	....	....	....	50	205,000	41,000	34.6	32.0	Don. R. Sidle.
1,635*	....	....	....	70	82,800	1,183	189.0	24.0	
12,300	Meters not used on Commercial.				61,070	....	....	....	Walkerville W. Co., C. D. Brown, Secy.-Treas.
27,348	2,654	6,632,000	2,500	229	920,000	4,017	123.6	38.0	W. A. McFarland, Supt.
764	....	....	....	66	91,810	1,391	26.0	20.0	G. E. Shoemaker, Secy.
....	....	....	....	....	....	....	....	....	
3,923	761	426,000	560	33	71,300	2,162	58.8	21.0	
....	....	....	....	....	190,000	....	45.0	....	W. C. Hawley, Ch. Engr. Pa. W. Co.
12,254	....	....	....	....	....	....	119.0	....	Williamsport Water Co.
16,568	....	....	....	....	....	....	....	50.0	Edgar M. Hoopes, Jr.
....	....	....	....	....	....	....	....	....	W. E. Merritt, Supt.
....	....	....	....	....	....	....	....	....	Arthur F. Ballou, Supt.
....	—Included in industrial.			....	946,000	....	17.9	....	Geo. W. Bachelder, Commr.
....	....	....	....	....	....	....	....	....	Geo. H. Rohnston, Supt.
....	....	....	....	....	....	....	....	28.0	James G. Butler, Supt.
17,870	....	....	....	....	....	....	....	53.0	E. L. Peene, Supt.
....	....	....	....	....	....	....	....	....	S. Inone, Ch. Engr.